

**A NEW *ERYTHMELUS* (HYMENOPTERA:  
MYMARIDAE) FROM CENTRAL ASIA,  
AN EGG PARASITOID OF *CIRCULIFER* SPP.  
(HOMOPTERA: CICADELLIDAE)<sup>1</sup>**

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**ABSTRACT:** A new species of mymarid wasp from Turkmenistan, *Erythmelus margianus*, is described and illustrated. Adult parasitoids were reared from eggs of several cicadellid species including beet leafhopper, *Circulifer tenellus* (Baker). A key to the *panis* (*Parallelaptera*) species group of *Erythmelus* is given.

Enock (1909) described the genera *Erythmelus* and *Parallelaptera* based on the following distinctions: female funicle 5- and male flagellum 10-segmented in *Parallelaptera*, 6- and 11-segmented in *Erythmelus*; flagellar segment 2 of male antenna very small (Enock overlooked this segment in the original description), and forewing margins almost parallel in species belonging to *Parallelaptera*. In *Erythmelus*, flagellar segment 2 of male antenna is subequal to other flagellomeres in length, and forewing margins are not parallel. Later, the majority of Mymaridae taxonomists, including Annecke and Doutt (1961), followed Enock in recognizing *Parallelaptera* as a valid genus. However, both genera share several important morphological characters such as metanotum projecting over propodeum, several rows of small spines on foretibia, greatly reduced mandibles, females with a well-developed hypopygium (Schauff 1984). Subba Rao (1989) reinstated *Parallelaptera* as a valid genus after Schauff (1984) synonymized it with *Erythmelus*. I am following Schauff's classification and place 6 species which formerly belonged to *Parallelaptera* together with a new species described herein from Turkmenistan into a distinct *panis* species group within *Erythmelus*.

I am following Annecke and Doutt (1961) in using terminology and making measurements to indicate the range (in mm). Specimens of *Erythmelus* (*Parallelaptera*) were borrowed for study from collections indicated by the following acronyms: BMNH, The Natural History Museum, London; CNCI, Canadian National Collection of Insects, Ottawa; UCRC, University of California, Riverside; USNM, National Museum of Natural History, Washington; ZMAS, Zoological Institute, St. Petersburg. Abbreviation used in the description is: F = funicular (flagellar in males) segment.

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### Key to species of the *panis* group, females.

1. Funicular segments progressively longer than preceding ones.....2
- 1' Funicular segments not progressively longer than preceding ones but of different lengths.....5
2. F3 over 1.7 times length of F1 .....3
- 2' F3 less than 1.7 times length of F1 .....4
3. Total length of F1-F4 about 1.75 times length of F5 (Mexico, USA) .....*E. rex* (Girault)
- 3' Total length of F1-F4 about 1.15 times length of F5 (India) .....*E. panchamus* (Subba Rao)
4. General body coloration black. Mesosoma shorter than metasoma. F5 slightly dilated basally (Fig. 1). Club with 5 sensory ridges (Turkmenistan).....*E. margianus*, new species
- 4' General body coloration brown. Mesosoma longer than metasoma. F5 not dilated basally. Club with 3 sensory ridges (Austria, Belgium, Bulgaria, Denmark, England, Iran, Moldavia) .....*E. panis* (Enock)
5. F3 much longer than F4 (South Africa, Uganda).....*E. funiculi* (Annecke and Doutt)
- 5' F3 shorter than F4.....6
6. F3 shortest of funicle (India, Iraq) .....*E. polyphagus* (Livingstone and Yacoub)
- 6' F3 as long as F1 (India).....*E. teleonemiae* (Subba Rao)

#### *Erythmelus margianus*, new species

Figs. 1-4

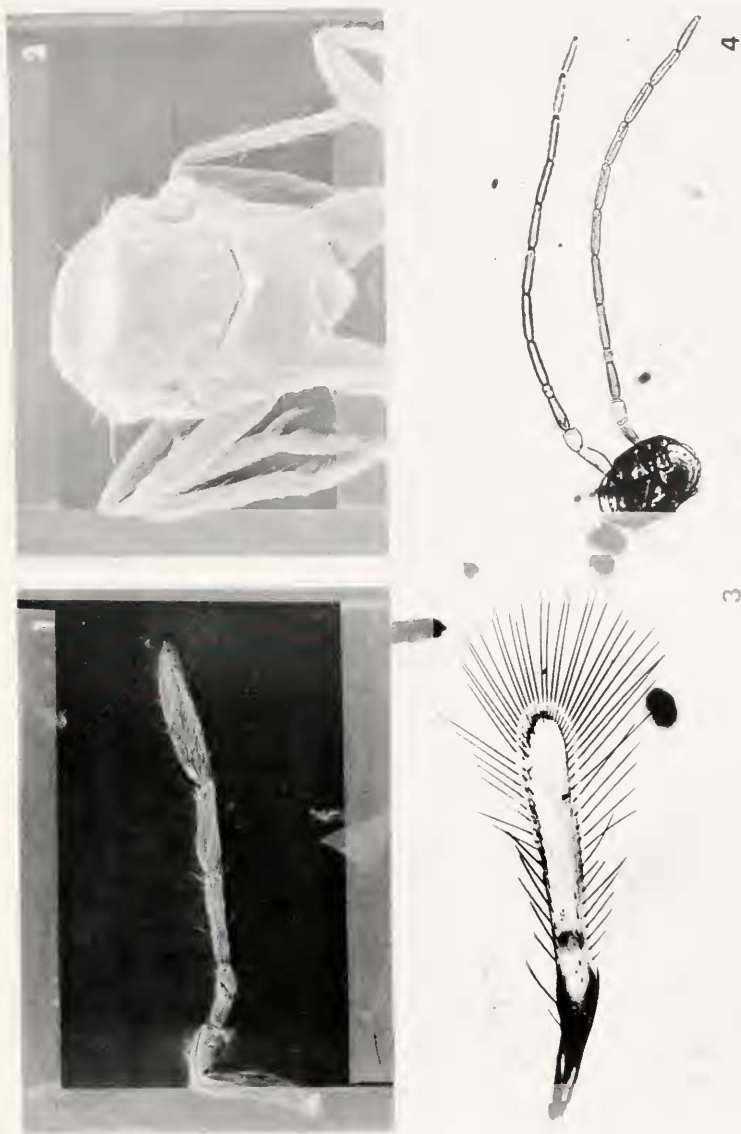
**Female.** General body coloration black; scape, pedicel and F1 light brown, remainder of antenna and eyes dark brown; axillae and tegulae yellowish; legs yellowish brown; femora, middle and hind tibiae dark brown, except middle part of hind femora yellowish; forewing with faint infuscation not extending beyond venation, remainder of forewing and hindwing hyaline; 2 or 3 basal segments of metasoma yellowish golden, hypopygium dark brown.

Head in dorsal view oval, wider than long, slightly wider than mesosoma; trapezoidal in frontal view. Eyes large, broadly separated, sparsely setose. Ocelli in obtuse triangle; POL 3 times OOL. Antenna (Fig. 1) inserted at lower level of eyes; radícula not clearly separated from scape; pedicel longitudinally striate; F1 and F2 with striation finer than pedicel, all mentioned antennal segments sparsely setose, remainder of antenna densely setose; F3 shorter than F4; F5 longest of funicle, slightly dilated basally, bearing 2 sensory ridges; club with 5 sensory ridges.

Mesosoma (Fig. 2) smooth except postscutellum with fine longitudinal sculpturing laterally; pronotum with 2 pairs of small setae; mesoscutum nearly as wide as long, bearing a pair of setae close to notaulices and another pair posteriorly; axillae with a pair of medial setae clearly separated from subcircular scutellum; postscutellum with medial cross shaped carinae, bearing a pair of setae; propodeum divided dorsomedially, smooth; mesophragma projecting slightly into metasoma. Forewing (Fig. 3) of typical shape for *E. panis* species group, with nearly parallel margins, projecting beyond apex of metasoma at about 1/4 of its length; venation short, reaching slightly more than 1/3 of wing's length; hypochoeta close to proximal macrochaeta, reaching posterior margin of forewing; distal macrochaeta about 2 times as long as proximal macrochaeta; blade hairless except for 3 rows of microchaetae, one on anterior margin distad to venation, small setae close and distad to fringe hairs, starting from fifth seta, second row along anterior margin beyond first fringe seta, and third row of 6-10 smaller setae closer to posterior margin. Hindwing narrow, about same length as forewing; blade bare except a row of small chaetae along anterior margin.

Metasoma subsessile, nearly as wide as mesosoma but longer; ovipositor occupying about 3/4 of its length, slightly exerted beyond apex of metasoma.

Measurements (n=2): Body: 0.587-0.658; Head: 0.075-0.076; Mesosoma: 0.240-0.259; Metasoma: 0.270-0.323; Ovipositor: 0.247-0.264.



*Erythmelus marginatus* sp.n.: Figs. 1-2: Scanning electron micrographs. (1) Antenna (female); (2) Mesosoma (female). Figs. 3-4: Photomicrographs. (3) Forewing (female); (4) Head and antennae (male).

Antenna: Scape: 0.090-0.103; Pedicel: 0.037-0.042; F1: 0.019-0.020; F2: 0.023-0.024; F3: 0.032-0.033; F4: 0.039-0.043; F5: 0.065-0.067; Club: 0.106-0.113.

Forewing: Length: 0.465-0.479; Width: 0.052-0.053; Venation: 0.165-0.175; Marginal vein: 0.074-0.075; Hypochaeta: 0.028-0.029; Proximal macrochaeta: 0.037-0.038; Distal macrochaeta: 0.074-0.080; Longest fringe cilia: 0.202-0.213.

Hindwing: Length: 0.464-0.465; Width: 0.022-0.023; Venation: 0.143-0.144; Longest fringe cilia: 0.150-0.160.

Legs:	Femur	Tibia	Tarsus
Fore	0.133-0.164	0.139-0.150	0.154-0.160
Middle	0.103-0.135	0.179-0.180	0.159-0.160
Hind	0.114-0.150	0.171-0.209	0.175-0.203

**Male.** Similar to female except as follows: body lighter, general coloration dark brown; pedicel and legs light brown to yellowish; antenna (Fig. 4) filiform, sparsely setose, F2 very short as typical for *E. panis* species group; basal infuscation of forewing stronger than in female; metasoma shorter and markedly narrower than mesosoma. Genitalia slightly protruding ventrally, similar in structure to male genitalia of *E. panis* (Viggiani 1988).

Measurements (n=2): Body: 0.494-0.525. Antenna: Scape: 0.057-0.067; Pedicel: 0.031-0.034; F1: 0.046-0.048; F2: 0.016-0.020; F3: 0.053-0.059; F4: 0.057-0.068; F5: 0.057-0.063; F6: 0.055-0.061; F7: 0.053-0.063; F8: 0.055-0.063; F9: 0.059-0.061; F10: 0.056-0.060. Forewing: Length: 0.460-0.480; Width: 0.046-0.053.

**Type material:** Described from 2 females and 2 males as follows: TURKMENISTAN. **Holotype.** Female, Old Nisa, on *Atriplex* sp. ex *Circulifer tenellus* eggs, 15.VI.1992, V. Trjapitzin (slide No. 41, deposited in ZMAS). **Allotype.** Male, same data as holotype (slide No. 109, ZMAS). **Paratypes.** 1 female, Old Nisa, sweeping upon *Atriplex* sp., 11.VI.1992, S. Trjapitzin (USNM); 1 male, Ashgabat, near Kurtlinskoye storage lake, on *Salsola* sp. ex *Circulifer* sp. eggs, 10.VI.1992, S. Trjapitzin (USNM).

**Etymology.** The specific name corresponds to the ancient Margiana, a country which is now Turkmenistan.

**Diagnosis.** The new species is close to *E. panis* (Enock) and *E. rex* (Girault). *E. margianus* can be distinguished from *E. panis* by its blackish color (brown in *E. panis*), presence of 5 sensory ridges on the club, mesosoma shorter than metasoma, and postscutellum with medial cross shaped carinae. *E. rex* differs from *E. margianus* in having brownish body coloration and different proportions of antennal segments.

**Other material examined:** *E. panis* (Enock): Holotype female of *Parallelaptera panis* Enock, England, Woking, July 1885, Fred. Enock; allotype male, same data, Richmond (BMNH); 4 females, 3 males, Iran, Karaj, Agricultural College, pantraps, 1-3.IX.1977, J.T. Huber (CNCI). *E. rex* (Girault): Holotype female of *Anthemella rex* Girault, USA, IL, Urbana, greenhouse, 28.XIII.1911 (USNM type No. 14,232); 2 females, USA, IA, Cedar Co., 12 mi. SSE Tipton, 28 VIII.1983, J.D. Pinto, screen sweeping, det. J.T. Huber, 1984 (UCRC). *E. polyphagus* (Livingstone and Yacoub): 1 female, 1 male, Iraq, Mosul, Nenavali Ag. Stn., ex *Stephanitis pyri* F. (Tingidae), 20.IX.1985 (CIE 17,507 Sp. No. 5, BMNH). *E. panichanus* (Subba Rao): Paratype female of *Parallelaptera panichanus* Subba Rao, India, Tamil Nadu, Coimbatore, 25.IX-1.X.1979, J.S. Noyes (BMNH). *E. teleonemiae* (Subba Rao): 1 female, 1 male, India, Coimbatore, det. B.R. Subba Rao (BMNH). *E. funiculi* (Annecke and Doutt): 1 female, 2 males, Uganda, Kawanda, 3.I.1957, E.D.L. Matega, det. B.R. Subba Rao (BMNH).

## DISCUSSION

The biology and host associations remain poorly known for most of seven species which form *E. panis* group. *E. teleonemiae* (Subba Rao) was reared from eggs of *Dictyla* sp. and *Teleonemia scrupulosa* Stål (Hemiptera: Tingidae) on *Lantana camara* L. in India (Subba Rao 1984). *E. polyphagus* (Livingstone and Yacoob) was recorded as an egg parasitoid of *T. scrupulosa* and 18 other tingid species in southern India (Yacoob and Livingstone 1983). *E. panis* (Enock) was recently reared in Moldavia from eggs of the pear lace-bug, *Stephanitis pyri* F. (Goncharenko and Fursov 1988). *E. rex* (Girault) was reported by Peck (1963) to be an egg parasitoid of the beet leafhopper, *Circulifer tenellus* (Baker) (Homoptera: Cicadellidae), in the USA. Annecke and Doutt (1961) stated that all attempts to breed *E. rex* on *C. tenellus* eggs failed. In the present study attempts to rear the new species, *E. margianus*, which was imported in 1992 into California on *C. tenellus*, have also failed despite the fact that adult wasps were reared in Turkmenistan from eggs of several *Circulifer* species including beet leafhopper.

*Erythmelus* is moderately abundant and shows up frequently in pan traps and Malaise traps (Schauff 1984). I found *E. margianus* to be the most common mymarid wasp in Turkmenistan emerging from samples of foliage from plants which belong to the "saltbush" family (Chenopodiaceae). Specimens examined in the present study were collected on different species of *Atriplex* and *Salsola*, common plant genera in central Asia.

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